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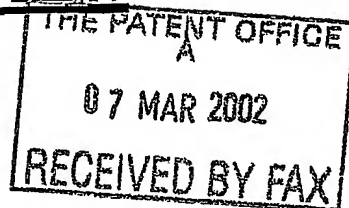
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P71916GB

2. Patent application number  
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0205392.4

07MAR02 E701633-1 002973

P01/7700 0.00-0205392. 07 MAR 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Sheffield Hallam University  
City Campus  
Howard Street  
SHEFFIELD  
S1 1WB, United Kingdom

Patents ADP number (if you know it)

7444110003

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

FOLDABLE CUP

5. Name of your agent (if you have one)

Harrison Goddard Foote

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Fountain Precinct  
Leopold Street  
Sheffield  
S1 2QD

Franks + Co  
9 President Buildings  
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7914237001

7451917002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
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Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

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Statement of inventorship and right to grant of a patent (Patents Form 7/77) 0  
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Request for substantive examination (Patents Form 10/77) 0  
Any other documents (please specify) 0

11.

I/We request the grant of a patent on the basis of this application.

Signature  
Vanessa J POTTER

Date  
07-03-02

12. Name and daytime telephone number of person to contact in the United Kingdom

Kate Taylor

0114 2743711

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**Patents Form 1/77**

## FOLDABLE CUP

### Field of the Invention

The invention relates to containers made from a one-piece flat sheet, made of for instance, waterproof material so that the containers may be used to hold both liquids and  
5 solids. In particular the invention relates to containers made from a one-piece flat sheet having an integral handle.

### Background to the Invention

Foldable containers are known for use as vessels such as cups for holding drinks or foods  
10 for personal consumption. Such foldable containers are either simple in structure in which case they will not retain their folded condition without hand or finger pressure being applied to them, or they are relatively complex structures including clamps or other devices for attaching to the folded container body in order to maintain its folded condition.

15

Furthermore, such containers are rarely provided with a handle to facilitate the handling of the container whilst it contains hot food or drinks. In the case where a handle is provided, it is a separate piece that requires attachment to the container body.

20 There is a need for a simple foldable container having an integral foldable handle, which may be maintained in its folded condition without using a separate fastening or other element which add to the overall complexity and cost of the article.

## Statement of Invention

According to the present invention there is provided a foldable cup comprising a sheet of material having a container piece integral with at least one handle piece, said container piece having fold lines enabling it to be transformed from a flat condition into a folded container, and said handle piece having fold lines enabling the piece to be formed into a handle extending from and held in a fixed position relative to the container.

In a preferred embodiment the cup comprises one integral handle piece. In an alternative embodiment the cup comprises two integral handle pieces.

10

Preferably the handle comprises fold lines that define a central gripping section. More preferably, the handle is formed by folding the handle piece about the fold lines thereon and then retaining the formed handle to the container by the folding interaction of the formed handle and container. Alternatively the handle is formed by folding the handle piece about the fold lines thereon and then retaining the formed handle to the formed container by the use of integral fastening elements.

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In a preferred embodiment the folded leak proof container is formed by folding the container piece about fold lines thereon, the fold lines defining at least two corner pieces, and then fastening opposed corner pieces together.

20

Preferably, the integral fastening elements are mating connection elements, more preferably press-stud fastenings.

In a preferred embodiment the container piece comprises fold lines that define a front piece, over which said corner pieces can be folded and fastened, creating a leak proof seal. Preferably the container piece comprises fold lines that define a base portion.

- 5 Preferably, the container piece comprises fold lines defining four opposing corner pieces and two face pieces over which the corner pieces can be folded and fastened.

- In a preferred embodiment, the container piece comprises a sheet of material dodecagon in shape. Preferably said sheet of material is a thin waterproof material. More preferably,  
10 the material is a plastics material, for example polypropylene. Preferably, the material is sufficiently flexible that it may be readily bent about fold lines scored into it.

#### **Brief Description of the Drawings**

- 15 The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 shows a plan view of the cup having a container portion and a handle  
-----  
portion, in its unfolded flat condition;

Figure 2 shows the container portion of figure 1 being assembled by a user;

- 20 Figure 3 shows the handle portion of figure 1 being assembled by a user; and

Figure 4 shows the cup of figure 1 in a folded formation.

### Detailed Description of the Invention

Referring to figure 1 of the accompanying drawings, a foldable cup is illustrated in its unfolded flat condition. The cup comprises a sheet of material 1, said sheet further comprising a container piece 2 and a handle piece 3. The sheet 1 is provided with a plurality of fold lines which have been scored into the body of the sheet.

The container piece 2 is dodecagon in shape. The container piece 2 is provided with inner fold lines 5 which define a rectangle 6 which form the base of the cup. Fold lines 7 extend from each of the four corners of the rectangle 6 to each of the corners of the two sides of the dodecagon which oppose the two shortest sides of the rectangle. This forms the two faces of the cup, 8 and 9.

A second fold line 10 also extends from each corner of the rectangle 6, extending to each of the four corners adjacent to those corners intersected by the fold lines 7. The fold line 10 defines the four corner pieces 11. The fold lines 10 also define two side pieces, 14 and 15.

The face 8 is provided with a press stud 12. The two corner pieces 11 adjacent to the face 8 are provided with hole 13, positioned such that when folded across the front of the face 8 each hole accommodates the press stud 12. The side piece 14 is provided with a hole 13 positioned such that when the corner piece 11, adjacent to both the face 8 and the side piece 14, is folded using fold lines 7 and 10 across the face 8, the hole 13 accommodates the press stud 12. The side piece 15 is provided with a press stud mating part 16. The

press stud mating part 16 is positioned such that, when the corner piece 11, adjacent to both the face 8 and the side piece 15, is folded using the fold lines 7 and 10 across the face 8, the hole 13 accommodates the press stud mating part, such that it can meet and be snapped together with the press stud 12.

5

The handle piece 3 is integral with the side of the dodecagon which defines the edge of the face piece 9 and extends from the two corners 23 and 24, that define said edge. The handle piece 3, is provided with three fold lines 17, 17' and 17'' which transverse the width thereof. The fold lines 17 divide the handle 3 into four pieces: an upper handle  
10 piece 18, a central gripping section 19, a lower handle piece 20 and a tongue 21.

A rectangle 26 is located in the central gripping section 19. The rectangle is defined by fold lines 27, which form the two longest sides of the rectangle 26, and extend longitudinally from the fold line 17 to the fold line 17'. Disposed on either side of the  
15 rectangle are gripping surfaces 31. The upper handle piece 18 is provided with two fold lines 22 which extend from the corners 23 and 24 to the fold line 17. Beneath each fold line 22 is an edge piece 32. The fold lines 22 intersect the fold line 17 to form an upper short edge 25 of the rectangle 26. Two further fold lines 28 define the lower short edge 29 of the rectangle 26. The two fold lines 28 extend from the two corners of the lower  
20 short edge 29 of the rectangle 26 across the lower handle piece 20 and extend to the two ends of the fold line 17''. Below the fold lines 28 are disposed edge pieces 33. The edge pieces 32 and 33, along with the gripping surface 31 form side panels 34.



A tongue 21 is located below the fold line 17". The tongue has curved edges 30 at the end thereof. The width of the tongue 21 is not greater than the than the shortest side of the rectangle 6. In an alternative embodiment the tongue may possess edges that bow out towards the center, the length of the bottom leading edge of the tongue not exceeding the  
5 shortest side of the rectangle 6.

Figure 2 illustrates the container piece 2 being folded to form a container. The two corner pieces 11 adjacent to the face 8 are folded across the underside of the face 8. The corner piece 11' adjacent to the side piece 14 is folded across the face 8 first. In folding the  
10 corner piece 11 across the face 8, the side piece 14 is curved across the face 8, the holes 13 and 13' of the corner piece 11 and the side piece 14 respectively, align such that the press stud 12 on the underside of the face 8 is exposed there through. The corner piece 11' is then folded across the face 8, overlapping part of the corner piece 11. The hole 13'' is aligned with the holes 13 and 13' and exposes the press stud 12 there through. In  
15 folding the corner piece 11' across the face 8, the side piece 15 is curved across the face 8, the mating press stud part provided on the top side of the side piece 15 aligning with the holes 13, 13' and 13'' such that the press stud parts 12 and 16 meet and can be  
snapped together, causing the front face 8 and two side faces 14 and 15 to raise from the fold lines 5 upwards from the base 6.

20

Figure 3 illustrates the handle piece being folded to provide a leak proof container having a handle capable of supporting the container when the container is filled with food or beverage. The corners 11'' and 11''' are folded one over the other across the underside

of the face 9. This creates a leak proof container. The corners 11'' and 11''' are secured to the face 9 by the insertion of the tongue 21 of the handle 3 beneath both of the overlapping corners. This positions the upper handle piece 18, the central gripping section 19 and the lower handle piece 20 over the overlapping corners 11'' and 11''',  
5 retaining them in the folded position. The application of a pinching action by the user to the gripping surfaces 31, displaces the edge pieces 32 and 33, such that the gripping surfaces oppose one another creating a handle formation. The interaction between the tongue 21 and the corner pieces 11'' and 11''' is such that the side panels 34 are deformed by a reduction in their overall length causing the handle formation to be retained even  
10 upon removal of the pinching force by the user.

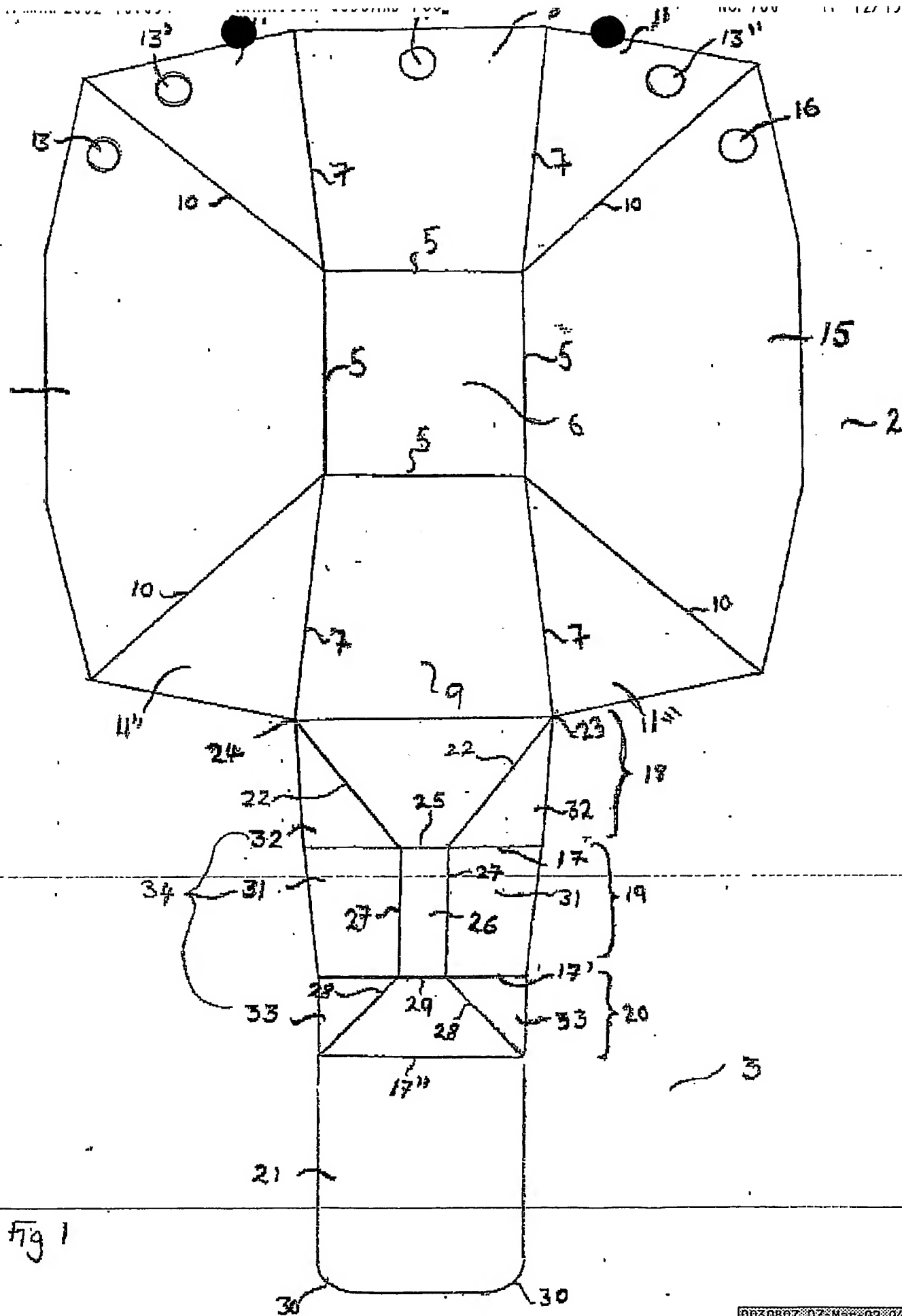


Fig 1

Fig. 2

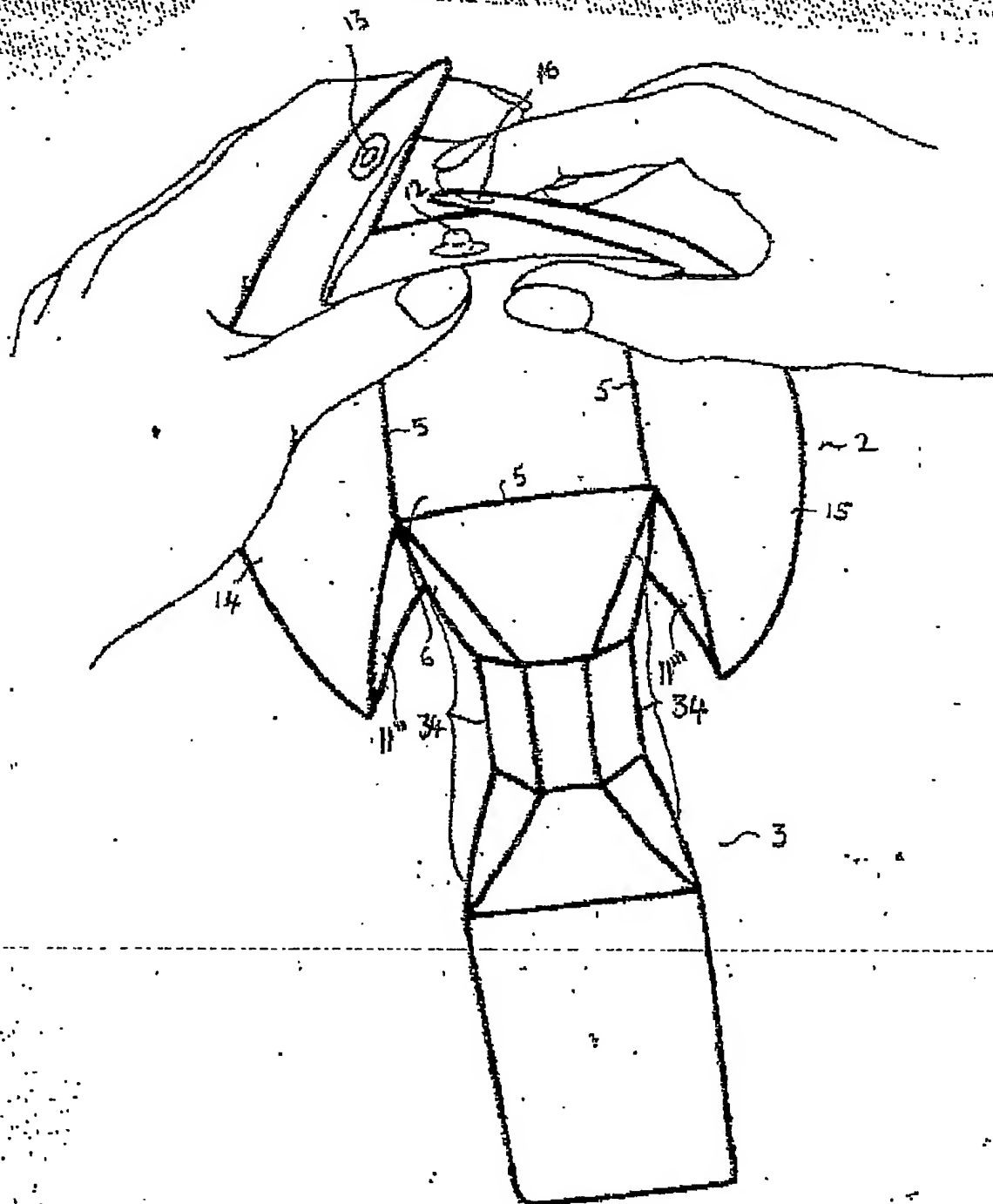


Fig 3

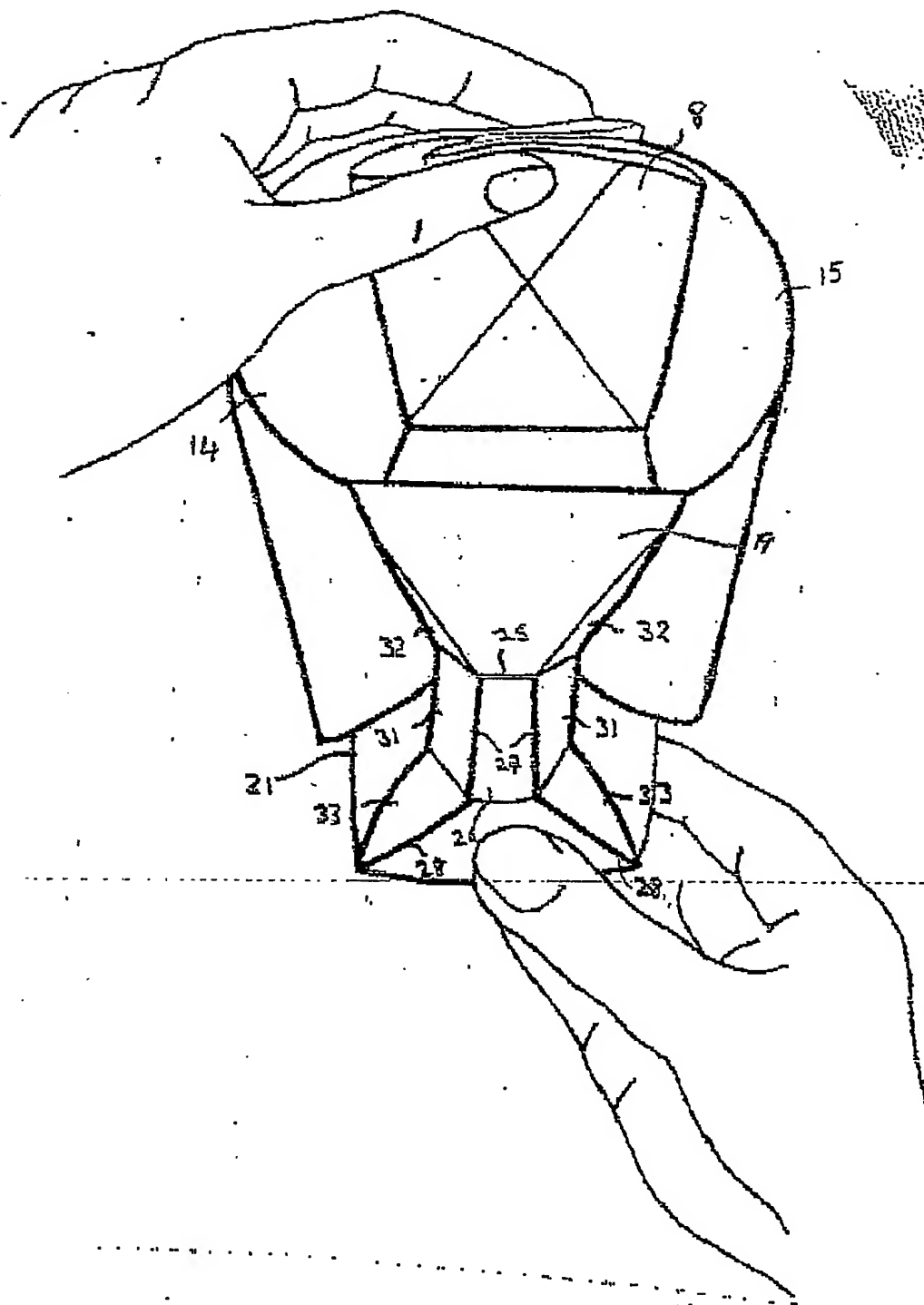
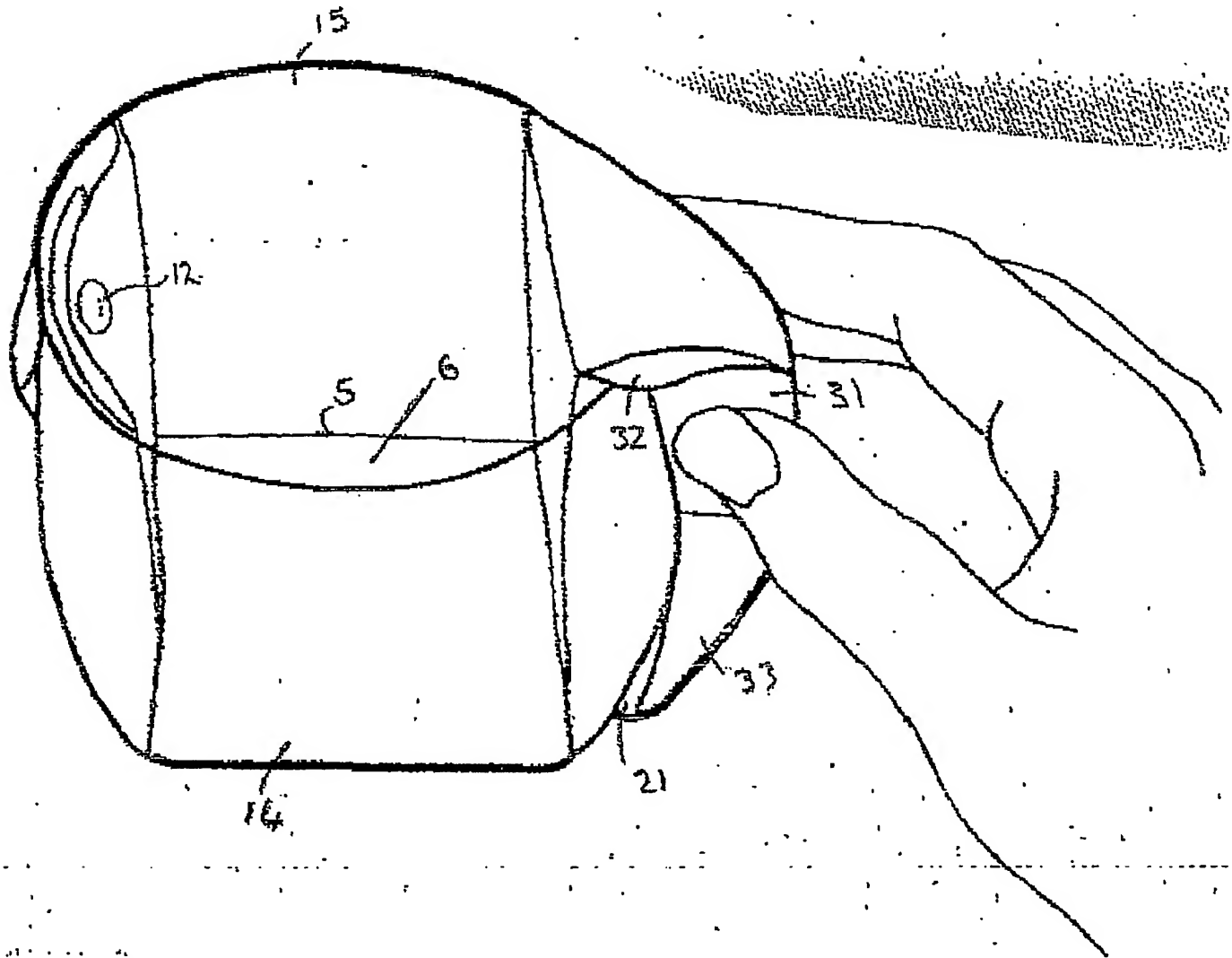


Fig 4



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